

APPENDIX: ALLOWED CLAIMS

26
12. The nucleic acid mimic according to claim 26 wherein said target molecule is a nucleic acid.

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13. (amended) The nucleic acid mimic according to claim 26 wherein said sterically bulky substituent has 3 or more non-hydrogen atoms and is -R', -OR', -SR', -N(R')₂, -C(R')₃, -C(=X)(R'), -C(=X)(-Y-R') or S(=O)_{1,2}(-Y-R') wherein:

X is O, S or NH;

Y is O, S or NH; and

R' is H, C₁-C₅₀-alkyl, C₂-C₅₀-alkenyl, C₂-C₅₀-alkynyl, C₇-C₅₀-alkyl-aryl, C₆-C₅₀-aryl, C₁₀-C₅₀-naphthyl, C₁₂-C₅₀-biphenyl, C₇-C₅₀-aryl-alkyl, pyridyl, imidazolyl, pyrimidinyl, pyridazinyl, quinolyl, acridinyl, pyrrolyl, furanyl, thienyl, isoxazolyl, oxazolyl, thiazolyl and biotinyl, wherein R' can be substituted one or more times by -NO, -NO₂, -SO₃, -CN, -OH, -NH₂, -SH, -PO₃²⁻, -COOH, -F, -Cl, -Br and -I.

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14. The nucleic acid mimic according to claim 26 wherein said base is a naturally or non-naturally occurring pyrimidine base.

15. The nucleic acid mimic according to claim 14 wherein said sterically bulky substituent is bound to C-6, C-5 or N-4 of said naturally occurring pyrimidine base.

16. The nucleic acid mimic according to claim 15 wherein said sterically bulky substituent is bound to N-4 of said naturally occurring pyrimidine base.

17. The nucleic acid mimic according to claim 16 wherein said naturally occurring pyrimidine base is cytosine.

Christensen et al.

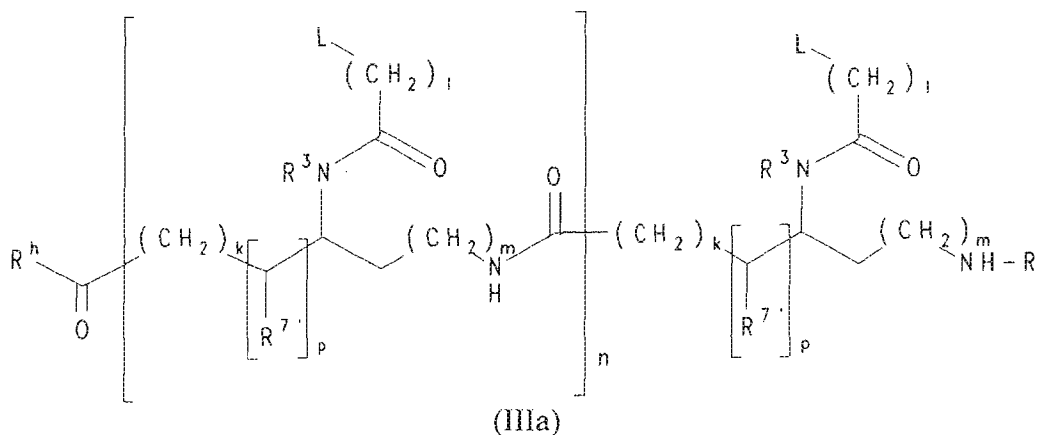
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18. The nucleic acid mimic according to claim 16 wherein said sterically bulky substituent is $(C=O)-R''$ wherein R'' is C_1-C_{20} -alkyl or C_6-C_{18} -aryl.

19. The nucleic acid mimic according to claim 18 wherein said sterically bulky substituent is $(C=O)-C_6H_5$.

23. The nucleic acid mimic according to claim 26 having formula (IIIa):



wherein:

each L is independently selected from the group consisting of hydrogen, phenyl, heterocyclic base moieties, including those substituted with a sterically bulky group or groups, naturally occurring nucleobases, and non-naturally occurring nucleobases, at least one L being said base substituted with at least one sterically bulky substituent;

R^3 and R^4 independently are hydrogen, a conjugate, (C_1-C_4) alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C_1-C_4) alkyl, hydroxy, alkoxy, alkylthio or amino;

each R^7 is independently selected from the group consisting of hydrogen and the side chains of naturally occurring alpha amino acids;

n is an integer from 1 to 60;

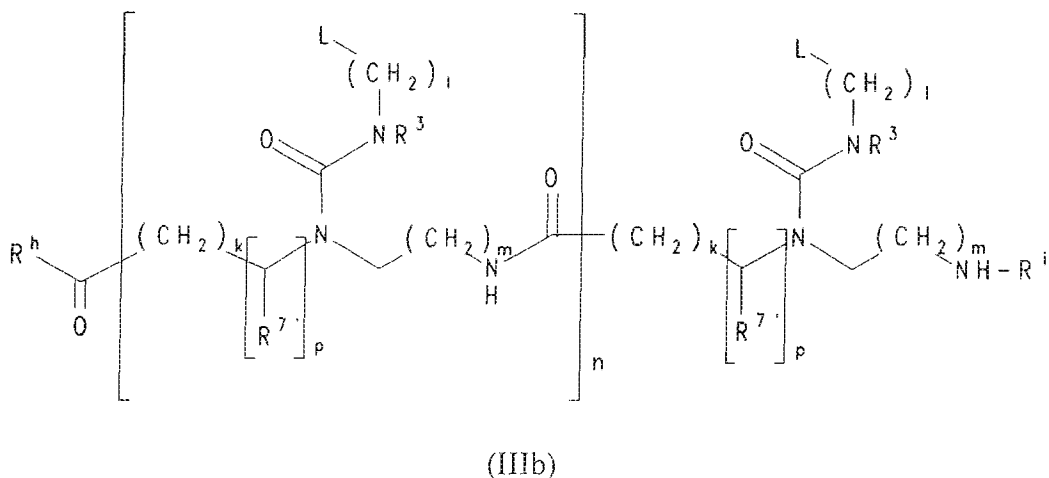
each of k, l, and m is independently zero or an integer from 1 to 5;

p is zero or 1;

R^h is OH, NH_2 or $-NHLysNH_2$; and

R^i is H or $COCH_3$.

24. The nucleic acid mimic according to claim ²⁶~~22~~ having formula (IIIb):



wherein:

each L is independently selected from the group consisting of hydrogen, phenyl, heterocyclic base moieties, including those substituted with a sterically bulky group or groups, naturally occurring nucleobases, and non-naturally occurring nucleobases, at least one L being said base substituted with at least one sterically bulky substituent;

R³ and R⁴ independently are hydrogen, a conjugate, (C₁-C₄)alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C₁-C₄)alkyl, hydroxy, alkoxy, alkylthio or amino;

each R⁷ is independently selected from the group consisting of hydrogen and the side chains of naturally occurring alpha amino acids;

n is an integer from 1 to 60;

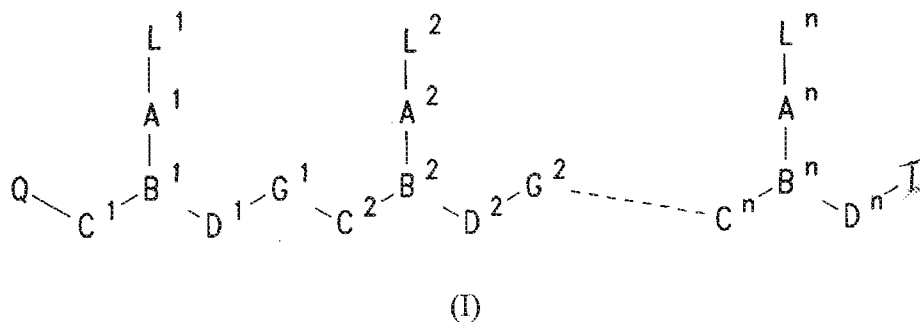
each of k, l, and m is independently zero or an integer from 1 to 5;

p is zero or 1;

R^h is OH, NH₂ or -NHLysNH₂; and

Rⁱ is H or COCH₃.

--26. A nucleic acid mimic in admixture with at least one target molecule selected from the group consisting of nucleic acids, transcription factors, carbohydrates and proteins, said mimic having formula (I):



wherein:

n is at least 2,

each of L^1 - L^n is independently selected from the group consisting of hydrogen, hydroxy, (C_1-C_4) alkanoyl, naturally occurring nucleobases, non-naturally occurring nucleobases, aromatic moieties, DNA intercalators, nucleobase-binding groups, heterocyclic moieties, and reporter ligands, at least one of L^1 - L^n being said base substituted with at least one sterically bulky substituent;

each of C^1 - C^n is $(CR^6R^7)_y$, where R^6 is hydrogen and R^7 is selected from the group consisting of the side chains of naturally occurring alpha amino acids, or R^6 and R^7 are independently

selected from the group consisting of hydrogen, (C₂-C₆)alkyl, aryl, aralkyl, heteroaryl, hydroxy, (C₁-C₆)alkoxy, (C₁-C₆)alkylthio, NR³R⁴ and SR⁵, where R³ and R⁴ independently are hydrogen, a conjugate, (C₁-C₄)alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C₁-C₄)alkyl, hydroxy, alkoxy, alkylthio or amino; and R⁵ is hydrogen, (C₁-C₆)alkyl, hydroxy-, alkoxy-, or alkylthio-substituted (C₁-C₆)alkyl, or R⁶ and R⁷ taken together complete an alicyclic or heterocyclic system;

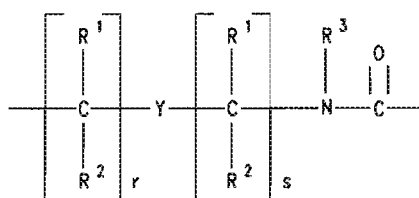
each of D¹-Dⁿ is (CR⁶R⁷)_z where R⁶ and R⁷ are as defined above;

each of y and z is zero or an integer from 1 to 10, the sum y + z being greater than 2 but not more than 10;

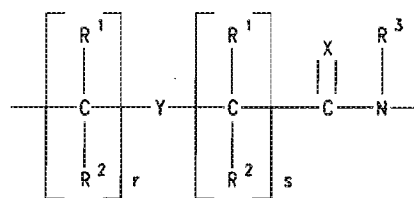
each of G¹-Gⁿ⁻¹ is -NR³CO-, -NR³CS-, -NR³SO- or -NR³SO₂-, in either orientation, where R³ is as defined above;

each pair of A¹-Aⁿ and B¹-Bⁿ are selected such that:

- (a) A is a group of formula (IIc) and B is N or R³N⁺; or
- (b) A is a group of formula (IId) and B is CH;



(IIc)



(IId)

where:

X is O, S, Se, NR³, CH₂ or C(CH₃)₂;

Y is a single bond, O, S or NR⁴;

each of p and q is zero or an integer from 1 to 5;